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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,721	10/29/2003	Isao Yahagi	Q78068	4030
23373	7590	10/04/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			CHU, JOHN S Y	
			ART UNIT	PAPER NUMBER
			1752	

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/694,721

Applicant(s)

YAHAGI

Examiner

John S. Chu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 14 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office action is in response to the amendment filed July 14, 2006.

1. The rejection under 35 U.S.C. 112, second is withdrawn in view of the amendment to claim 1.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over KAWABE et al (5,707,776).

The claimed invention is now drawn to the following:

1. (Currently amended) A positive working photosensitive admixture composition comprising:

an epoxy compound having two or more epoxy groups in one molecule;

a curing catalyst or a compound for producing a curing catalyst by heat; and

sulfonates.

KAWABE et al discloses a positive resin composition comprising a novolak resin binder, and photosensitive compounds, see column 19, lines 24-35 and column 21, line 1 – column 2, line 37 for sulfonates as recited in claim 2. Applicants are further directed to column 41, lines 40 – 60 wherein the dissolution accelerators are disclosed to include imidazole and other nitrogen compounds which are known curing agents for epoxy. Column 45, lines 34 – 46 disclose the

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presence of the suitable use of photobase generators and thermal acid generators as stabilizers.

And in column 44, lines 10-44 the use of epoxy compounds such as poly(propylene glycol) diglycidyl ethers meeting the recited epoxy compound having two or more epoxy groups in the molecule.

KAWABE et al lacks a working example with the use of a sulfonate, an epoxy and a curing agent as a composition, however the teachings are clear as to the use of the components listed together.

It would have been *prima facie* obvious to one of ordinary skill in the art of positive photoresist compositions to add a stabilizers such as imidazole, an epoxy compound as a crosslinking agent into the compositions comprising a novolak resin and a sulfonate acid generating agent as taught in column 21 and 22 with the reasonable expectation of a resist composition that has high resolution, good profiles and high heat resistance.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over SHELNUT et al (6,440,642) or ICHIKAWA et al (6,338,936).

The claimed invention has been recited above and is included by reference.

SHELNUT et al discloses a dielectric composition comprising a diluent, a crosslinking agent and additives. Applicants are directed to column 8, lines 6-65 for the epoxy compounds suitable for use in the composition. Specifically the compound include diglycidyl ether of bis-epoxypropoxyphenol propane which meets the recited epoxy compound having two or more epoxy groups.

Column 10, lines 12-49 disclose the use of thermal acid generators and thermal base generators in the composition wherein the artisans are directed JP-05158242 for known thermal

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base generators. These compounds catalyze the crosslinking agents in the composition. The sulfonates as claimed are disclosed in line 17-22 wherein nitrobenzyl tosylates are disclosed as well as sulfonic acid esters as disclosed in line 20.

SHELNUT et al lacks as working with all the recited ingredient, however the “comprising” language in the claim include other ingredients in addition to the curing catalyst, epoxy compound and sulfonates.

It would have been *prima facie* obvious to one of ordinary skill in the art of dielectric compositions to add a sulfonate compound and a photo/thermal base generator as disclosed in SHELNUT et al with the reasonable expectation of having a dielectric composition with low volatility and improved planarization.

ICHIKAWA et al disclose the a photosensitive resin compositions which comprises a resin, an ethylenically unsaturated compound, an epoxy resin, a photoacid generator and a polymerization initiator. Applicants are directed to column 13, lines 1-34 for the sulfonate compounds suitable for use in the composition which include iminosulfonates a genus of the claimed sulfonates. Column 14, lines 49-68 disclose the use of epoxy compounds as the crosslinking agent and column 15, lines 49-52 teach the known use of curing catalyst as claimed and provide the prevention of copper oxidizing.

It would have been *prima facie* obvious to one of ordinary skill in the art of photoresist compositions to add a curing catalyst into the composition of ICHIKAWA et al for the intended purpose of providing a composition with a latent curing catalyst to prevent the copper board from oxidation.

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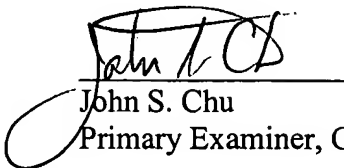
5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. SANO et al (5,362,597), DANIELS et al (5,312,715), MAEMOTO et al (6017.677) and YAMACHIKA et al (5,731,125) are cited to disclose photosensitive compositions comprising curing catalyst and sulfonates .

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (571) 272-1329. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Cynthia Kelly, can be reached on (571) 272-1526

The fax phone number for the USPTO is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PMR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


John S. Chu
Primary Examiner, Group 1700

J.Chu
September 30, 2006.